



Infrastructure Program Update

March 2005

The Bonneville Power Administration owns and operates 75 percent of the Pacific Northwest's high-voltage grid. The system includes more than 15,000 miles of transmission line and 285 substations. The lines network across 300,000 square miles in Oregon, Washington, Idaho, Montana and sections of Wyoming, Nevada, Utah and California. BPA's transmission system delivers about 30,000 megawatts annually and generates more than \$700 million a year in revenues from the sale of transmission services.

Congested Pathways

Today, critical paths on the Northwest transmission grid are congested and the system is near or at capacity. BPA has targeted its investments to those congested areas most in need of additional capacity. Some parts of the Northwest transmission system are currently operating so close to the edge of reliability standards that contingency plans have been put in place. BPA is aware of the challenges to meet regional demand for reliable transmission. Work has begun with stakeholders in the region to develop and implement a transmission adequacy standard.

Supporting Wind Development

BPA is committed to supporting the development of renewable resources throughout the Pacific Northwest. By the end of 2005, the amount of wind-powered generation connected to the BPA transmission grid could more than triple. BPA's Transmission Business Line plays an important role in providing and maintaining the infrastructure to deliver power from new and existing wind farms to meet regional load requirements.

The Infrastructure Program

BPA developed an infrastructure program in 2001 to improve reliability and shore up the Pacific Northwest region's transmission system. The program focuses on:

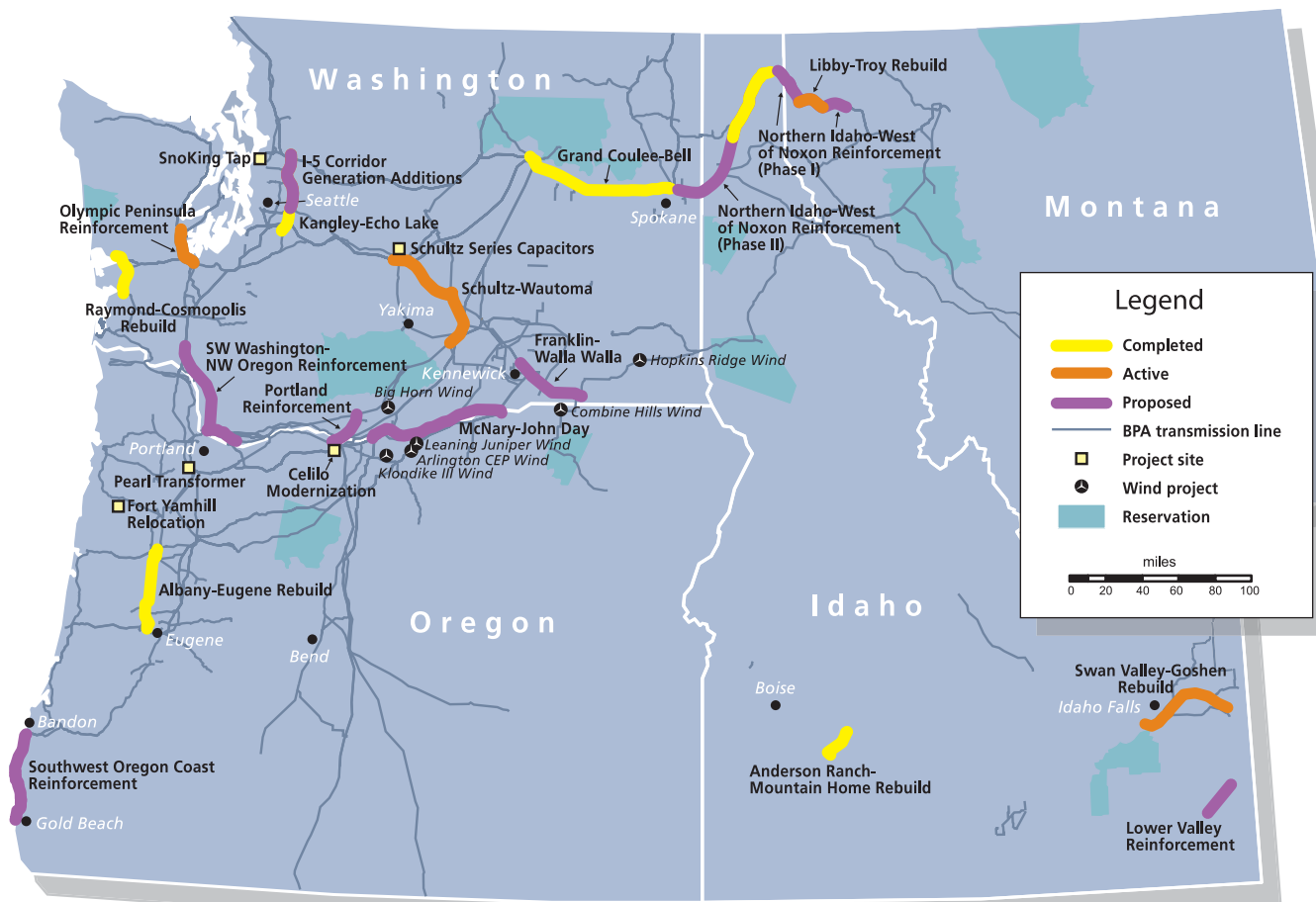
- Maintaining reliable transmission service to meet regional electricity demands.
- Restoring or enhancing transfer capability across key paths.
- Replacing aging infrastructure.
- Evaluating and investing in non-wires solutions.

Since 2001, BPA has invested over \$1 billion in transmission system projects. These critical investments are intended to minimize the possibility of catastrophic events such as the East Coast blackout in August 2003 and the Western energy crisis of 2000-2001.

Major infrastructure milestones have been achieved: new high-voltage transmission lines have been constructed, existing lines have been rebuilt, substation upgrades have been completed and additional system improvements are under way. BPA successfully completed construction on the Kangley-Echo Lake 500-kilovolt transmission line. This was the first major transmission line built by TBL in 16 years. It improves reliability in the Puget Sound area and was energized on Dec. 31, 2003. The Grand Coulee-Bell 500-kV transmission line project, which took more than two years to construct, relieves congestion on the West of Hatwai flow gate, maintains system reliability and increases capacity. The project was completed ahead of schedule and \$16 million under budget. The line was energized on Dec. 1, 2004.

BPA is committed to making infrastructure investments, but access to capital is critical. BPA had a statutory cap on Treasury borrowing of \$3.75 billion. Congress increased that authority by





\$700 million in 2003, allowing BPA to move forward to make infrastructure investments.

In addition, non-federal financing has allowed BPA to construct the Schultz-Wautoma 500-kV transmission line, a project needed to improve system reliability and availability. Portions of the project are financed under a lease-purchase agreement with a private financier, and other parts of the project are owned and financed by BPA using traditional U.S. Treasury borrowing. BPA will pay back \$119 million in taxable bonds that were issued in March 2004. BPA will lease the assets for 30 years but will manage construction of and exclusively operate the line. At the end of the lease, after the bonds are repaid, BPA has the option to purchase the line. Leasing conserves BPA's use of scarce U.S. Treasury borrowing, which otherwise is expected to be exhausted in 2008.

The following is a state-by-state status report on several critical infrastructure and wind projects completed and currently under way to enhance transmission system reliability and availability throughout the Northwest.

Washington Projects

Franklin-Walla Walla

This 18.5-mile transmission line project is located in Walla Walla, Wash. The new line is needed to interconnect the Franklin-Walla Walla 115-kV transmission line to Nine Mile Tap. New conductor will also be strung to increase capacity and maintain system reliability. Construction could start in July 2005 and be completed by fall 2005, pending environmental review. The project is estimated to cost \$5.6 million.

Grand Coulee-Bell

This 84-mile transmission line project is located in eastern Washington and replaced the old 115-kV wood pole transmission line with a new higher capacity 500-kV steel lattice line. It relieves congestion on the West of Hatwai flow gate, maintains system reliability and increases capacity across this key path from 2,800 to about 4,300 MW. The line was energized on Dec. 1, 2004, and it, along with associated substation projects, cost \$159 million.

Kangley-Echo Lake

This new nine-mile 500-kV transmission line project is located in northwest Washington and was built next to an existing 500-kV line. It improves Puget Sound area reliability and reduces the risk of blackouts during severe weather events. The line was energized on Dec. 31, 2003, just a day ahead of an arctic surge. The line, along with other Puget Sound Area Addition projects including substation construction and expansions, cost \$84 million.

Raymond-Cosmopolis Rebuild

This 18-mile 115-kV transmission line project is located in southwest Washington and replaced the original structures with a new galvanized single steel pole transmission line, which significantly improves reliability for utility customers in southwest Washington. The 115-kV transmission line, built in the 1930s, had one of the highest outage rates on the BPA system. The line was energized on Nov. 2, 2004, and cost \$11.2 million.

Schultz Series Capacitors

This series capacitor project is located in central Washington and upgrades existing series capacitor banks. Series capacitors boost voltage when it sags during periods of high demand and are an important tool used to reinforce a transmission grid, short of building new lines. The project enhances transmission capacity in the Puget Sound area. The capacitors were placed into service on Oct. 30, 2003, and cost \$16 million.

Schultz-Wautoma

This 63-mile 500-kV transmission line project located in central Washington is currently under construction and will add 600 MW of capacity to the heart of BPA's grid, relieving congestion on the I-5 corridor. The project includes a new substation and 65 miles of fiber. It is scheduled to be completed in December 2005 and is estimated to cost \$174 million.

Big Horn Wind Interconnection

This proposed wind project is located in southern Washington and would integrate up to 200 MW of power generated from PPM Energy's Big Horn Wind Project into the Federal Columbia River Transmission System. BPA would build a 230-kV switching substation (Spring Creek) and would loop it into the

Midway-Big Eddy 230-kV transmission line. This station would provide a terminal for PPM to connect an 11-mile 230-kV line from their Big Horn Substation. The project is in the environmental assessment phase.

Hopkins Ridge Wind Interconnection

This wind project is located in southeast Washington and integrates 150 MW of electricity from the Hopkins Ridge Wind Project into the Federal Columbia River Transmission System. The interconnection involves constructing a new BPA 115-kV switching substation on a five-acre parcel of land adjacent to an existing BPA transmission line. A tiered record of decision was signed and released on Dec. 23, 2004. Substation construction will start in March 2005, with interconnection of the wind project in the fall of 2005.

Oregon Projects

Albany-Eugene Rebuild

This 18-mile transmission line project is located in central Oregon and replaced the original 1939 wood pole structures with new 115-kV double-circuit steel line. It provides more reliable service to industrial loads in the area and capacity for load growth. The line was energized on Sept. 30, 2004, and cost \$7.4 million.

Celilo Modernization

This modernization project is located in northern Oregon at the northern end of the 846-mile Pacific direct-current intertie that ends in Los Angeles. It replaced 30-year-old mercury-arc valves with new solid-state thyristor valves. The upgrades kept the capacity at 3,100 MW; without them it would have dropped to 1,100 MW. The benefits of these investments will be realized for the next 35 years. The project was completed on April 12, 2004, and cost \$65.1 million.

Fort Yamhill Relocation

This project is located in northwest Oregon and relocates part of Salem-Grand Ronde 115-kV transmission line onto adjacent state-owned land. This would allow the state of Oregon to develop a new state park on the Fort Yamhill site near Grand Ronde, Ore. The project is dependent on state funding and could take place by fall 2005.

Pearl Transformer

This transformer project is located in northwest Oregon and adds a second 500/230-kV transformer to the Pearl Substation. It increased load service and reliability to the Portland area. The project was completed on Dec. 18, 2003, and cost \$16.3 million.

Arlington CEP Wind Interconnection

This proposed wind project is located in northern Oregon and would integrate 200 MW of electricity from the Arlington Wind Project into the Federal Columbia River Transmission System. BPA would integrate up to 200 MW of power at a tap on the McNary-Santiam 230-kV transmission line and build a substation adjacent to a substation Columbia Energy Partners would construct and own. The public comment period for this proposal ended Sept. 17, 2004. The tiered record of decision was released on Jan. 14, 2005.

Leaning Juniper PPM Wind Interconnection

This proposed wind project, formerly known as Arlington PPM, is located in northern Oregon and would integrate up to 200 MW of power from the Leaning Juniper PPM Wind Project into the Federal Columbia River Transmission System. Leaning Juniper would interconnect at the same BPA substation as proposed for the Arlington CEP Wind Project interconnection and tap into the McNary-Santiam 230-kV transmission line. The tiered record of decision is pending successful completion of the county permitting process and is expected in early 2005.

Combine Hills Wind Interconnection

This proposed wind project is located in northern Oregon and integrates up to 63 MW of power from the Combine Hills Wind Project into the Federal Columbia River Transmission System. BPA would need to upgrade 5.8 miles of the Walla Walla-Pendleton transmission line. The existing wood poles would be replaced within the same right-of-way and new conductor would be strung. The tiered record of decision is expected in winter 2005 and construction would begin soon after.

Klondike III Wind Interconnection

This proposed wind project is located in northern Oregon and interconnects 300 MW from the proposed Klondike Phase III Wind Project into the Federal Columbia River Transmission

System. The proposed interconnection involves constructing a new 10-mile 230-kV transmission line to transmit energy generated from Klondike Phase III wind project to BPA's John Day Substation. The environmental impact statement process began in January 2005 with a record of decision by early 2006. If BPA decides to interconnect the project, construction would begin in early 2006 with energization by December 2006.

Montana Projects

Libby-Troy Rebuild

This 17-mile transmission line project is located in northwest Montana and would replace the deteriorating wood pole line. The 115-kV transmission line has endured extensive damage from falling trees and aging hardware. The line needs to be rebuilt to maintain line reliability, ensure public safety and upgrade hardware to meet current industry standards. The planning phase is under way and scoping is scheduled to begin in spring 2005.

Idaho Projects

Anderson Ranch-Mountain Home Rebuild

This 18-mile transmission line project is located in southwest Idaho and replaced old wood poles with new steel poles, and upgraded insulators and hardware to meet current industry standards. The 115-kV transmission line had extensive damage from area wildfires and needed to be replaced to maintain line reliability and ensure public safety. The line was energized on Dec. 22, 2004, and cost \$3.5 million.

Swan Valley-Goshen Rebuild

This 25-mile transmission line project is located in southeast Idaho and replaces the existing wood pole structures with new wood pole structures. The 161-kV transmission line is needed to assure safe and reliable service to customers in Swan Valley, Idaho. Construction began in May 2004 and is scheduled for completion in 2006. The project is estimated to cost \$3.2 million.

For More Information

For more information on the Transmission Business Line, please visit TBL's Web site at www.transmission.bpa.gov or call toll free 1-888-276-7790.



Infrastructure Program Project Status

March 2005

Active Projects		
Project	Start Date	Energization Date
Hopkins Ridge Wind Interconnection (Washington)	March 2005	Fall 2005
Libby-Troy 115-kV Line Rebuild (Montana)	Spring 2008	Summer 2008
Olympic Peninsula Reinforcement Project (Washington)	Spring 2007	Summer 2007
Schultz-Wautoma Area 500-kV Line (Washington)	January 2004	December 2005
Swan Valley-Goshen 161-kV Line Rebuild (Idaho)	May 2004	May 2006

Completed Projects		
Project	Start Date	Completed Date
Albany-Eugene 115-kV Line Rebuild (Oregon)	June 2004	September 2004
Anderson Ranch-Mountain Home 115-kV Line Rebuild (Idaho)	July 2004	December 2004
Celilo Modernization Project (Oregon)	Winter 2001	April 2004
Grand Coulee-Bell 500-kV Line (Washington)	April 2003	December 2004
Kangley-Echo Lake 500-kV Line (Washington)	July 2003	December 2003
Pearl Transformer (Oregon)	December 2002	December 2003
Raymond-Cosmopolis Line Rebuild (Washington)	June 2004	November 2004
Schultz Series Capacitors (Washington)	March 2003	November 2003
SnoKing Tap to Monroe-Echo Lake Project (Washington)	July 2003	September 2003

Proposed Projects	
Arlington CEP Wind Interconnection (Oregon)	Lower Valley Reinforcement (Idaho)
Big Horn Wind Interconnection (Washington)	McNary-John Day 500-kV Line (Oregon)
Combine Hills Wind (Oregon)	North of John Day/Portland Area Reinforcement (Oregon, Washington)
Fort Yamhill 115-kV Line Relocation (Oregon)	
Franklin-Walla Walla 115-kV Line (Washington)	Northern Idaho-West of Noxon (Idaho)
I-5 Corridor Generation Additions (Washington)	Southern Oregon Coast Reinforcement (Oregon)
Klondike III Wind Interconnection (Washington)	Southwest Washington/Northwest Oregon Reinforcement (Oregon, Washington)
Leaning Juniper PPM Wind Interconnection (Oregon)	

